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EXAMINER

HARRINGTON, ALICIA M

ART UNIT PAPER NUMBER

2873

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,533

Applicant(s)

SAWAGAMI ET AL.

Examiner

Alicia M Harrington

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004 and 24 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 1 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0504.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the information disclosure statement filed on 5/24/04.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The disclosure is objected to because of the following informalities:
 - a. The specification at page 4, line 8 refers to a patent document 1. The Examiner believes applicant is referring to JP 20002-243915 as discussed on page 2. Please amend the specification to include the document patent or publication number.
 - b. The specification at page 6, lines 21-23 recites "circular molded lens having a radius R1 (R2) whose center". Does applicant mean R1 or R2? The specification is unclear as to applicants intended meaning. This same phraseology occurs at page 8, lines 6-11 and page 18, lines 1-7.

Appropriate correction is required.

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 3 recites an embodiment that is not in the specification. The specification should be amended to include this feature without adding new matter.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 5-8, 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites in lines 16-19, “a flash is caused when melted resin enters an air vent port provided in a molding die cavity and are solidified in the course of manufacturing the molded lens through injection molding”. The recitation is a cause and effect statement, which is not a positive claim recitation. Claim 5 also recites in lines 22-26, “an imaginary straight line that passes through and crosses at right angles the optical axis and extends in direction which is in parallel with the first and second straight line portions crosses a circular arc portion”. However, the Examiner can’t examine imaginary lines and the claims must set forth the invention without the drawings. Thus, lines 22-26 of the claim render the claim indefinite for failure to particularly point out and distinctly claim applicant’s invention.

Claim 5 will be examined as best understood by the Examiner.

Claims 6-8 inherit their indefiniteness from claim 5 from which they depend.

Claim 9 recites in lines 21-29, “a flash generated when melted resins enter a vacant space that is formed on a contact portion between the sleeve and the core and are solidified, in the course of manufacturing the molded lens through injection molding”. The recitation is a cause and effect statement. which is not a positive claim recitation. Thus, lines 21-29 of the claim render the claim indefinite for failure to particularly point out and distinctly claim applicant’s invention.

Claim 9 will be examined as best understood by the Examiner.

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Claim 10 inherits its indefiniteness from claim 9 from which it depends.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hiroyuki et al (JP 2002-243915).

Regarding claim 1, Hiroyuki discloses a molded lens used in an optical pickup device comprising:

plane of incidence having a first optical surface (for example 2c);

plane of emergence having second optical surface provided on an opposite side of the plane of incidence (for example 2a); and

an outer circumference surface having a shaped formed by a first straight line portion (one side wall of the lens) which is in parallel substantially with a plane including an optical axis (2) of the molded lens, second straight line portion (the other side wall of the lens) which is in parallel with the first straight line portion and is symmetric with the first straight line portion about the plane of incidence and by two circular arcs each connecting end portions of the first and second straight line portions, wherein a part of fringe (see figure 2c- section 12a) of each of the first and second optical surfaces (see figure 2a- section 12b) each which is substantially in a form of a circle whose center is on the

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optical axis, is cut off by each of the first and second straight line portions (see translation sections 24-28; outer circumference/arc/semicircle that defines the fringe on either side).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art – (see pages 3 and 4 of the specification and figure 4) in view of Nakanishi et al (US 5,329,406).

Regarding claim 5, Applicants admitted prior art discloses a molded lens comprising:

(a) a plane of incidence having a first optical surface (see figure 4b);
(b) plane of emergence having a second optical surface provided on an opposite side of the plane of incidence (bottom side); and
an outer circumference (see figure 4b) surface having a shape formed by a first straight line portion which is in parallel substantially with a plane including an optical axis of the molded lens, second straight line portion which is in parallel with the first straight line portion and is symmetric with the first straight line portion about the plane of incidence (for example figure 4b) and by two circular arcs each connecting end portions of the first and second straight line portions.

Applicant admitted prior art, see pages 3-4, discusses a flash (excess material) is formed during an injection molding processing when melted resins enter an air vent port

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provided in a molding die cavity and are solidified in the course of manufacturing the molded lens through injection molding. Applicant admitted prior art also illustrates the flash is formed to be projected from a side of at least one of the two circular arc portions. However, applicant's admitted prior art fails to specifically disclose the flash does not project from a tangent line that passes through a point of intersection where an imaginary straight line that passes through and crosses at right angles the optical axis and extends in a direction which is in parallel with the first and second straight line portions crosses a circular arc portion. As well known to molded lenses, a flash is extra material which can be as long, short or wide as the area (air port/hole) where it solidifies, as taught by Nakanishi (see col. 1, lines 29-60 and col. 4, lines 20-40). Nakanishi also discussed the prior art methods of cutting/peeling the flash off the lens. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the flashes cut to a desired length so that is beneath a particular tangent line during the lens manufacturing process, since it is known in the prior art to trim flashes from the lens, as taught by Nakanishi. In addition, Nakanishi teaches finding methods to minimize or prevent flashes from occurring to prevent increase cost in manufacturing and to make the molded lens easier to transport after formation.

Regarding claim 6, the applicant fails to specifically disclose wherein the length of the flash in the direction of the optical axis is 0.03 mm or less. Nakanishi give an example of excess material filling space as small as 15 μm (see col. 4, lines 35-40). As discussed above, Nakanishi teaches the flash is cut /peeled off the lens in the prior art molded lens manufacturing process. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the length of the flash be 0.03 mm or less,

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since it is known that a flash is cut as a part of manufacturing, cutting the flashes to a desired length would be within routine skill in the art and Nakanishi teaches a flash can be very small.

Regarding claim 7, applicant's admitted prior art discloses in figure 4, the molded lens of claim 5, wherein the flash (301) formed on the circular arc portion on one side of the two circular arc portions (see figure 4b).

Regarding claim 8, applicant's admitted prior art discloses using a molding die molding a molded lens, which is described in claim 5 where an air vent port is formed on the die (see page 3). However, admitted prior art fails to specifically disclose (a) first molding and (b) second molding molding a portion including the plane of emergence of the molded lens, wherein an air vent port is formed on either one of the first and second molding dies as claimed.

In the same field of endeavor, Nakanishi disclose an injection molding system using (a) first molding die (7, 8) for molding a portion including the plane of incidence of the molded lens; and (b) second molding die (9, 10) a portion including the plane of emergence of the molded lens, wherein an air vent port (gap along the parting plane) is formed on either one of the first and second molding dies (see col. 4, lines 5-39).

Nakanishi discloses a flash typically occurs in this molding configuration. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to made the die molding used by applicant's admitted prior art contained the claimed structure, since it is know injection molding system and Nakanishi teaches such a system produces flashes.

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11. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuji (JP 11-52108) in view of Spector et al (US 4,836,960).

Regarding claim 9, A molded lens for an optical pickup device, comprising:

(a) a plane of incidence having a first optical surface (for example 21a);

(b) a plane of emergence having a second optical surface provided on an opposite side of the plane of incidence (for example 21b); and

a flange portion (26 or 27-see figures 4 and 5 and translation section 14-20) that covers a periphery of the plane of incidence and that of the plane of emergence, wherein either one of the surface of the flange portion on the side of the plane of incidence and the surface of the flange portion on the side of the plane of emergence is made to be a reference surface (to hold in lens maintenance frame) used for positioning a molded lens, the reference surface formed to be projected from the plane of incidence or plane of emergence in an optical axis direction (see figure 5) surface plane of incidence or the plane of emergence in an optical axis direction of the molded lens. Fuji further discloses the lens is made by injection molding (see section 6).

Although, Fuji fails to specifically discloses a molded lens molding die for manufacturing the molded lens having a sleeve and a core that moves in the optical axis direction relatively with the sleeve to push the molded lens out of the molding dye while the core keeps touching the molded lens after injection molding, and a flash generated when melted resins enter vacant space formed on a contact portion between the sleeve and the core and are solidified, in the course of manufacturing the molded lens through injection molding, projects in the optical axis direction from the

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periphery of the plane of incidence or the plane of emergence and does not project in the optical axis direction from the reference surface.

However, prior art injection molding processing, as illustrated by Spector et al, teaches that a form of injection molding includes dies (for example 27,28) for manufacturing molded lenses has a sleeve (21) and core (for example 22; the dies move within the space) that moves in the optical axis direction (see figures 1-5). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a molding die as claimed for the molded lens of Fuji, since it is well known prior art injection molding process for lens and the molded die can be used to fabricate lenses of good quality with low residual stress, as taught by Spector.

In addition, Fuji's molded lens does not include a flash projecting from any sided of the lens (- doesn't project in the optical axis direction from the reference surface). Spector teaches that a flash (excess material on the edge of the lens) is a known problem in injection molding manufacturing. Spector teaches the flashes necessitate manual intervention and cleaning procedures. Therefore, in a molded lens, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the flash projections from the peripheral surfaces can be cut off or left on the surface according to applicants lens design, since the peripheral surface is not the optically function surface. It would have been further obvious to one of ordinary skill in the art at the time the invention was made that a flash projection doesn't project from the reference surface, since it is used for positioning the optical element and a flash would prevent a secure fit in the maintenance frame.

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Regarding claim 10, Fuji and Spector discloses a molding die for molded lens for molding the molded lens described in claim 9, Spector further comprises:
a first molding die (28) for molding the portion including the plane of incidence of the molded lens; and
a second molding die (27) for molding the portion including the plane of emergence of the molded lens, and either one of the first and second molding dies comprising the sleeve (21) and the core (22) (for example 22; the dies move within the space) (see figures 1-5). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a molding die as claimed for the molded lens of Fuji, since it is well known prior art injection molding process for lens and the molded die can be used to fabricate lenses of good quality with low residual stress, as taught by Spector.

Allowable Subject Matter

12. Claim 4 is allowed.

13. Claims 2, 3 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include the molded lens satisfying $R1=R2$ and $1 < H/R1 < 2$ as claimed.

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Regarding claim 3, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include the molded lens satisfying $R1=R2$, $1 < H1/R1 < 2$ and $H1-H2 > 0.1$ as claimed.

Regarding claim 4, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which include a molded lens satisfying $R1=R2$ and $1 < H/R1 < 2$ as claimed.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571 272 2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AMH

Alicia M Harrington
Examiner
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